2878

PATENT

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Feb 20, 2004
Date

Robert Bergstrom

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	:	John F. Corson et al.
Application No.	:	10/086,658
Filed	:	February 28, 2002
For	:	Signal Offset for Prevention of Data Clipping in a Molecular Array Scanner
Examiner	:	Thanh X. Luu
Art Unit	:	2878
Docket No.	:	10020333-1
Date	:	February 20, 2004

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RESPONSE TO RESTRICTION REQUIREMENT

Sir:

In response to the Restriction Requirement dated January 20, 2004, and in view of 37 C.F.R. 1.143, applicants hereby provisionally elect, with traverse, Group I, claims 1-6 and 18-22, for examination at this time. However, as noted in the previous sentence, Applicants respectfully traverse the restriction requirement.

Please consider claims 1, 7, and 23, the independent claims from the three groups identified by the Examiner as patentably distinct:

1. A method for reliably acquiring emitted-light intensity from the surface of a molecular array, the method comprising:
providing a probe-molecule excitation system;
providing an emitted-light photodetection system that produces an analog signal representative of the emitted-light intensity;
adding a signal offset to the analog signal;
digitizing the analog signal to produce a digital signal;
subtracting a portion of the signal offset from the digital signal; and
integrating the digital signal to produce integrated digital signals that are each associated with a pixel in a scanned image of the molecular array.

7. A method for reliably acquiring emitted-light intensity from the surface of a molecular array, the method comprising:
providing a probe-molecule excitation system;
providing an emitted-light photodetection system that produces an analog signal representative of the emitted-light intensity;
digitizing the analog signal to produce a digital signal;
adding a signal offset to the digital signal;

integrating the digital signal to produce integrated digital signals; and

subtracting a portion of an integrated signal offset from the integrated digital signals to produce final, integrated digital signals that are each associated with a pixel in a scanned image of the molecular array.

23. A molecular array scanner comprising:

a probe-molecule excitation system;

an emitted-light photodetection system that produces an analog signal representative of the emitted-light intensity;

a signal-offset adder that adds an offset to the analog signal;

an analog-to-digital converter that digitizes the analog signal to produce a digital signal;

a digital-signal integrator that integrates portions of the digital signal to produce integrated digital signals; and

a signal-offset subtractor that subtracts a portion of an integrated signal offset from the integrated digital signals to produce final, integrated digital signals that are each associated with a pixel in a scanned image of the molecular array.

Claims 1 and 7 are both directed to methods, and share, almost word-for-word, the "providing a probe-molecule ...," "providing an emitted-light photosystem ...," "adding a signal offset ...." "digitizing the analog signal ..." elements. Both also include subtracting and integrating elements. In other words, claims 1 and 7, and the dependent claims that depend from them, are quite similar, differing in the order of two pairs of elements, and in the language of the final two elements. Applicants' representative has never before seen such similar claims declared patentably distinct in a restriction requirement. Claim 23 is directed to a molecular array scanner having components that carry out the methods of claims 1 and 7, including a probe-molecule excitation system, provided in the "providing a probe-molecule ..." elements of claims 1 and 7, an emitted-light photodetection system, provided in the "providing an emitted-light photosystem ..." elements of claims 1 and 7, a signal-offset adder that carries out the "adding a signal offset ...." element of claims 1 and 7, an analog-to-digital converter that carries out the "digitizing the analog signal .." elements of claims 1 and 7, a digital-signal integrator that carries out the "integrating the digital signal ..." elements of claims 1 and 7, and a signal-offset subtractor that carries out the "subtracting a portion ..." elements of claims 1 and 7. Claim 23 is thus extremely closely related to claims 1 and 7. In order to search and examine claims 1, 7, and 23, the Examiner would need to consider almost identical elements in the case of all three of the groups of claims that the Examiner has identified.

According to MPEP § 803:

> Under the statute an application may properly be required to be restricted to one of two or more claimed inventions only if they are able to support separate patents and they are either independent (MPEP § 806.04 – 806.04(i)) or distinct (MPEP § 806.05 – 806.05(i)).
>
> If the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions. (emphasis added)

In Applicants' representative's opinion, it would be a far more serious burden to independently search and examine the three, extremely closely related claim sets identified by the Examiner, than to search and examine them together. The independent method claims 1

and 7 of groups I and II commonly include 4 identical elements, as well as two additional, differently worded, but similar elements. Both claims have identical preambles. Any search related to claim 1 will necessarily require searching seven elements that are identical or similar to the seven elements of claim 7. Applicants' representative cannot imagine a serious burden arising from searching and examining these two groups together. Although claim 23 of group III is a system claim, rather than a method claim, each element of claim 23 is a component of a molecular array scanner that carries out an element of claims 1 and 7. Again, searching the elements of claim 23 would necessarily require searching for component elements corresponding to elements of claims 1 and 7. Applicants' representative cannot imagine a serious burden arising from searching and examining the claims of group III together with those of groups I and II. It cannot be the case that the Examiner restricted the claims based on method-versus-apparatus considerations, since the Examiner included claim 18, an apparatus claim, together with claim 1, a method claim, in group I. Finally, Applicants' representative cannot identify any criterion of independence or distinctness in MPEP §§ 806.04-806.05 that would justify the restriction requirement.

In conclusion, Applicants respectfully traverse the restriction requirement for the reasons discussed above.

Respectfully submitted,
John F. Corson et al.
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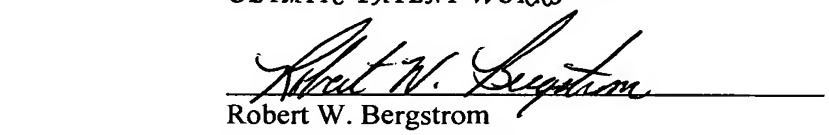

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